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ABSTRACT

Response data from questionnaires administered to 204 teachers served as the basis for determining (1) changes in the interpersonal relations of elementary principals, and (2) the effect of needed changes on the social-emotional climate of their respective schools. Perceived change, organizational climate, executive leadership, tact, and collaborative decision making were measured. This report describes the resulting 5-day training laboratory attended by 28 elementary principals, and includes a list of the objectives, a list of 12 changes hypothesized as a result of the training, and a brief statistical analysis of behavior changes in a preregistered group and a nonpreregistered group. The study revealed more positive change by principals in the experimental group than by those in the control group, and showed that laboratory training in interpersonal relations affects positively the administrator's behavior with his staff and the social-emotional climate of the school. (JK)

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Changes in Elementary School Principals as a Result of Laboratory Training

Technical Report No. 5

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In the last few years, human relations training in educational organizations has received increased recognition. Colleges traditionally have emphasized school buildings, personnel administration, finance, and other courses in school management while training educational administrators. Now more emphasis is placed on the application of the behavioral sciences to educational problems. In the modern training programs, according to Griffiths, "The emphasis is away from bonds, buildings, and buses and toward the true content of administration--people."[1]

School administrators are increasingly concerned with improving their administrative skills and upgrading the performance of their teachers. A major concern of elementary school principals centers on human relations, or more specifically, working with other members of a group.[2] One of the popular means of re-education to which many of these administrators are turning is the sensitivity or laboratory training experience.

Several organizations, including school boards, have sponsored laboratory training programs for school administrators. Individuals and teams have received financial assistance to attend the laboratory sessions. However, participation in a five-day residential laboratory, such as the one described in this study, constitutes a large investment in time and money. "What do they get in return for this investment? What does the sponsoring school district receive in return for the financial aid they provide? Can laboratory training help a person be a better school administrator?"

This study sought to discover what observable changes in elementary school principals result from laboratory training, and to determine what effect these changes may have on the social-emotional climate of the elementary school organization. The specific questions were:

1. Does an elementary school principal change his behavior in working with his staff as a result of a five-day laboratory training experience?
2. Does the social-emotional climate of an elementary school change subsequent to the principal's participation in a five-day interpersonal relations laboratory?

LABORATORY EXPERIENCE IN OREGON

An opportunity to study the effects of laboratory training on the interpersonal relations of principals with their teaching staffs was provided by the Oregon Elementary School Principals Association. It sponsored a laboratory in interpersonal relations with the Oregon Secondary Principals Association, the Northwest Regional Educational Laboratory, and the Oregon State Department of Education, at Pacific University, Forest Grove, Oregon, June 17-21, 1968.

Cost of the laboratory experience was $102.50 for each participant. This charge included tuition, room, and meals.

The laboratory training staff, secured by the Northwest Regional Educational Laboratory, was headed by John Wallen, regional coordinator for the National Training Laboratory --Institute for Applied Behavioral Science. Each staff member was highly qualified in the areas of laboratory training and the behavioral sciences. In addition, each had a wide background of professional experience in conducting training sessions.

objectives

The following laboratory objectives were stated in material handed to participants:

1. To increase each person's understanding of:
   a. ways he serds messages of which he is not aware--how others see his actions differently from the way he sees them.
   b. his tendency to misread other people's actions and his responses to messages others did not send.
   c. how feelings influence behavior--his own as well as the behavior of others.
   d. his silent assumptions (those he has been unaware of) that give rise to his feelings about other people's actions.
2. To increase each person's skill in:
   a. understanding the feelings and ideas of others; using skillful checking responses to decrease damaging misunderstandings.
   b. communicating his own feelings and ideas in ways that are maximally informing and minimally hurtful to others.
   c. dealing with conflict and misunderstanding.

The staff developed the schedule of activities to allow for flexibility and adaptability of theory sessions and procedures.[3] Numerous sources propose general outlines of activities typically pursued at a human relations laboratory, and the Oregon laboratory did not deviate markedly from these outlines.[4]

The T-group was used in this laboratory as the major learning technology. Openness about feelings, general "here-and-now" emphasis, encouragement toward using others in the group as "auxiliary nervous systems" or "social mirrors," reception of "feedback" relative to one's own behavior--were the learning outcomes emphasized.

expected outcomes

What kinds of behavior changes could one expect in elementary school principals as a result of laboratory training? It was hypothesized that an administrator who experienced this training would become more tactful in dealing with his teaching staff. He would be sensitive to the needs of others and would not abuse other people's feelings. Because he would feel less threatened, he would find it easier and more desirable to develop close personal relationships with his staff. Instead of relying on status differences to influence his staff, he would be aware of their individual differences and consider them as professional colleagues rather than as subordinates.

He would also find himself able to communicate more effectively, employing skillful speaking as well as effective listening. His staff members would always feel free to bring to him any personal or professional problems. The principal also would be more effective in attempts to improve the quality of staff performance; teachers would be involved in making policy decisions for their school.

Several effects of this behavior on the whole school organization could be expected. The teachers would tend to accept the organization's goals more fully and to work more effectively toward their accomplishment. The staff would become a more cohesive group and would find satisfaction in fulfilling their social needs and in the accomplishment of their tasks. They would have a higher level of morale, and the social-emotional climate thus would become more open to innovation and change.

The hypothesized changes, then, were seen as logical outcomes of the five-day laboratory.

1. An elementary school principal who attends a five-day laboratory will be perceived as having changed his behavior in working with others.

Specific changes in the interpersonal behavior of elementary school principals as a result of laboratory training were hypothesized:

2. Less status emphasis
3. More effective communication
4. Less directiveness and dominance
5. More consideration given to the staff
6. More use of tact in dealing with others
7. A more collaborative approach to decision-making
8. More leadership directed toward improving the quality of staff performances

Expected changes in the social-emotional climate of the elementary school organization as a result of the principal's participation in laboratory training were thus:

9. Greater group cohesiveness

10. Higher staff morale
11. Staff perception of administration as being less hindering
12. A more open organizational climate

MEASURING INSTRUMENTS

perceived-change questionnaire

The first hypothesis was used to determine if changes across several dimensions of job-related behavior were perceived by observers. A perceived-change questionnaire developed by Miles (1965) and refined by Bunker (1965) was used to gather data. An open-ended question for observers was asked:

> Over a period of time people may change in the ways they work with other people. Since June of 1968 do you believe your principal _____(name)_____ has changed his/her behavior in working with people in any specific ways as compared with the previous year? (Yes_____) (No_____). If "yes" please describe.

Total change scores were developed by counting the number of specific changes reported by the observers of each subject. Verified change scores were similarly developed by counting the number of instances when two or more observers reported the same behavior change for a particular subject.

organizational climate descriptive questionnaire

The Organizational Climate Descriptive Questionnaire (OCDQ), as developed by Halpin and Croft (1963), consists of eight subtests. Four of these subtests pertain to the principal's behavior and four to the teachers' behavior. The dimensions of the principal's behavior are:

1. Aloofness. The impersonal or formal character of the principal who operates on the basis of rules rather than on informal face-to-face situations
2. Production Emphasis. Highly directive and "bossy" attitude, insensitive to staff feelings
3. Thrust. Attempt to motivate the organization by the example which he personally sets
4. Consideration. Treatment of teachers in such a way that they feel a sense of social satisfaction

The dimensions of teacher behavior are:

1. Disengagement. The teacher's tendency to do things without commitment to the task
2. Hindrance. The feeling that the leadership of the principal interferes with the work of the staff
3. Esprit. Satisfaction of social expectations along with the sense of accomplishment
4. Intimacy. A group closeness in isolation of task accomplishment.[5]

Seven of the eight subtests of the Organizational Climate Descriptive Questionnaire were selected as instruments to collect data for this study. The subtests Aloofness, Thrust, Production Emphasis, and Consideration, were used to test hypotheses 2, 3, 4, and 5. Low scores in Aloofness and Production Emphasis and high scores in Thrust and Consideration were hypothesized for the experimental group after training.

The subtests Disengagement, Esprit, and Hindrance were used to test hypotheses 9, 10, and 11. Low scores in Disengagement and Hindrance and a high score in Esprit were hypothesized for the experimental group after training.

From the OCDQ subtests, Halpin and Croft have inductively derived six organizational climates of schools that can be ranked from "open" to "closed." The rankings of the climates on the openness score roughly parallel the scores which the schools receive on the subtest Esprit. According to Halpin and Croft, the most representative indicator of an open climate are high scores on the subtests Esprit and Thrust in combination with a low score on Disengagement. They recommend the following formula for determining the degree of openness:

$$\text{Openness Score} = \text{Esprit} + \text{Thrust} - \text{Disengagement}$$

The open climate, characterized by scores high on the subtests Esprit and Thrust, and low on Disengagement, "describes an energetic, lively organization which is moving toward its goals, but which is also providing satisfaction for the individuals' social needs. Leadership acts emerge easily and appropriately as

they are required. Contrariwise, the closed climate is marked by low scores on Esprit and Thrust, and by a high score on Disengagement. There seems to be nothing going on in this organization; they (leadership acts) are met with apathy; they are not taken seriously by the group members. In short, morale is low, and the organization seems to be stagnant."[6]

The combined scores of the subtests Esprit, Thrust, and Disengagement were used to determine the openness of each elementary school in the study. According to hypothesis 12, the experimental group should have higher scores for this measure after laboratory training.

The reliability of the OCDQ was reported in terms of internal consistency and coefficients of equivalence. Three methods of estimating reliability were used by Halpin and Croft: the Spearman-Brown prophecy formula, correlation between odd- and even-numbered respondents, and communality estimates for three-factor rotational solution for the eight subtests. The reported coefficients ranged from a low of .26 to a high of .84.[7] The subtests Disengagement, Esprit, and Thrust, the basic factors for determining openness or closedness, registered the highest coefficients of reliability for all three methods of analysis.

executive professional leadership

The instrument developed by Gross and Herriott (1965) to measure a principal's Executive Professional Leadership (EPL) is composed of eighteen statements about the behavior of the principals in an effort to improve the quality of staff performance.[8] Teachers were asked to report how frequently their principal engaged in these sorts of behavior. A twelve-item H-technique Guttman scale was designed, reducing the information from a series of items to a single score which could be used as the definition of each principal's position on the EPL dimension. To obtain the "best estimate" of the central tendency of the EPL of each principal, the scale scores developed from the report of each of the teacher-observers in that school were averaged. Reliability estimates for the EPL scale were reported in terms of its coefficient of reproducibility, one measure of the "goodness" of a Guttman scale. The EPL scale has a highly satisfactory coefficient of reproducibility of .978.*

the tact dimension scale

In the National Principalship Study, Gross and Herriott also developed a scale to measure the amount of social support a principal provided to his teaching staff. Five items from this scale were used as measures of the principal's use of "tact" with his teachers. The teachers were asked to report how frequently their principal engaged in the following kinds of behavior:

1. Puts you at ease when you talk to him
2. Makes those who work with him feel inferior to him
3. Develops a "we feeling" in working with others
4. Develops a real interest in your welfare
5. Rubs people the wrong way

Each item in the "tact" dimension was examined separately. Validity and reliability estimates for these items were not available. These behaviors appeared to be important to sound interpersonal relations and could be expected to change as a result of the laboratory training. The changes hypothesized in this study were toward higher scores for items 1, 3, and 4, and toward lower scores for items 2 and 5.

the dimension of collaborative decision-making

The amount of change in the dimension of shared decision-making to test hypothesis 7 was determined by examining responses to the question, "To what extent does your principal share with teachers the following responsibilities?

1. For determining the minimum level of satisfactory student performance
2. For evaluating how good a job the school is doing

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*The EPL scale was selected for this study because the behaviors comprising the instrument are considered vital to the effective administration of an elementary school when one accepts the proposition that upgrading the instructional program is one of the most important functions of an elementary school principal.

3. For determining how teachers should be supervised
4. For developing a policy for handling student discipline problems."

Each item in this dimension was examined separately to determine if significant changes occurred as a result of laboratory training.

PARTICIPANTS

experimental group

Prior to the laboratory session, the preregistrants were contacted by letter and invited to participate in a followup study. The fourteen principals who agreed to participate supplied names and addresses of all teachers who were planning to remain in their schools for the following year.

Each principal also was asked (1) the number of teachers in the school; (2) his years of experience in the present principalship; (3) his total years of experience in educational administration; and (4) his age.

control group

Principals who had not preregistered for the laboratory were also invited to participate in this study. Invitations were mailed to elementary school principals on the basis of the size of their schools. Those who agreed to participate also completed the personal data sheet. From these principals, a matched control group was selected.

COLLECTION OF DATA

before-measures

Questionnaires were mailed to 294 teachers of the target schools in late May. After a followup reminder, 234 usable questionnaires were received (the return rate was 79.6 percent). Of twenty-eight schools involved, a mean of 8.36 teachers responded from each school. The range was from a low of four to a high of thirteen teacher respondents.

Each questionnaire was coded with a number that identified the school and the teacher. In February, 1969, an identical questionnaire was sent to these teachers.

after-measures

In October, 1968, each participating principal provided the investigator with an updated list of names and addresses of the teachers who had returned for the 1968-69 school year. Principals also were asked to indicate by an asterisk (*) four or five teachers who they were in most frequent daily contact with. Those teachers were then asked to fill out the perceived-change questionnaire.

perceived-change questionnaire

In November, 1968, five months after the laboratory session, a perceived-change questionnaire was mailed to the nominated teachers at their homes. They were asked to indicate what specific changes (if any) they had noticed in the way their principals had worked with people since last year. Each principal received a similar questionnaire and was asked to report specific changes he noticed in his own methods of working with people.

Out of 160 perceived-change questionnaires sent, 140 usable replies were received. The range was from four to six observers at each school, including the principal as a self-observer. (The response rate was 87.5 percent.)

final questionnaire

All teachers who replied to the first questionnaire were sent another one in February, 1969. Of 219 teachers who were mailed final questionnaires, 204 returned theirs in usable form. The range was from a low of three teacher-respondents to a high of eleven teacher-respondents; the mean number per school was 7.3.

Table 1 summarizes the distribution of the twenty-eight elementary schools by percentage of returning teachers who completed both before and after questionnaires.

TABLE 1

PERCENTAGE OF RETURNING TEACHERS WHO COMPLETED BEFORE AND AFTER QUESTIONNAIRES

Percent of Returning Teachers Who Served As Observers	School Frequency	Percent	Cumulative Percent
90-100%	2	7%	7%
80- 89	3	11	18
70- 79	6	21.5	39.5
60- 69	4	14	53.5
50- 59	5	18	71.5
40- 49	6	21.5	93
30- 39	2	7	100
	Total 28 schools		

TREATMENT OF DATA

perceived-change questionnaire

The perceived-change questionnaire contained a free-response question asking teachers and principals to report any changes in the way the principals worked with people. The observers' responses were sorted, coded, and counted to yield a total-change score and a verified-change score.

Differences between the experimental and control groups were analyzed for significance by the Wilcoxon Matched-Pairs Signed-Ranks test to verify hypothesis 1, that the experimental-group principals would be perceived as having changed behavior in working with others.

before-after questionnaire

Hovland, Lumsdaine, and Sheffield (1949) propose a method for analyzing data for a before-after experiment:

> . . . in an experiment the significance of a before-after change in the experimental group is usually not the important consideration. Rather, the important consideration is the comparison of the changes in the experimental group and the control group. In a before-after study, events other than the experimental variable which intervene between the first and second measurement can produce changes, so that a change in the experimental group may be accompanied by a corresponding change in the control group, indicating that the change in the experimental group was due to factors other than the experimental variable. Thus the test of significance must demonstrate a reliable difference between the changes in the experimental group and in the control group.[9]

According to the authors, it is not sufficient to

show that a reliable change occurred in the experimental group but not in the control group. They reason that a zero difference, or a small but unreliable difference in the opposite direction in the control group, may fail to prove that a change took place, but it does not prove that no change took place.

By using the differences between the changes of the two groups, we can take into account any initial differences between the two groups on the before-measure.

> . . . the before measurement determines any initial population differences, which differences are subtracted out when the effects of the experimental variable are gauged from the differences between the before-to-after changes in the two samples.[10]

In this study, responses to the before-after questionnaire were scored and punched on data cards. The cards were processed to provide means, variances, and t-ratios comparing changes in the experimental and control groups in a matched-pair design. The following equation[11] expresses the t-statistic used to test the differences between the changes of the two groups:

$$t = \frac{M_d - E(M_d)}{\sqrt{\frac{\Sigma D^2}{N} - M_d^2}\left(\sqrt{\frac{1}{N-1}}\right)} \qquad df = N - 1$$

Where: N = the number of differences (pairs) in the sample

M_d = the mean of the sample of difference values

D = the difference between a matched pair

An alpha level of .05 on a one-tailed test was used. The null hypothesis was that whatever changes took place were not different for the control and experimental groups.

Circumstances imposed definite limitations on this study.[12] Numerous factors influenced the behavior of the experimental group: the five-day laboratory training experience itself, travel, advanced study, maturation, and changes in staff. However, it was assumed that these factors affected the experimental and the control groups equally. Both groups could therefore be expected to change from the before-measure to the after-measure, a period of about nine months. It was assumed that any systematic differences between the changes of the two groups resulted because the experimental-group principals attended the five-day training laboratory.

ANALYSIS OF DATA

perceived-change questionnaire

The perceived-change questionnaire was completed by observers five months after the laboratory and total change scores and verified change scores were derived.

Total-Change Scores

Table 2 summarizes the results of the analysis of the total-change scores. The score was derived by counting the number of specific behavior changes that were listed for a principal. The changes were either positive or negative in terms of desirability. A Wilcoxon T-value of six (N=12) was significant at the .05 level. Siegel reports a T-value of 14 or less (N=12) as significant at the .05 level.[13] The null hypothesis, that the sum of the positive ranks would be equal to the sum of the negative ranks, was rejected. The experimental group showed significantly more changes than did the control group, thus supporting hypothesis 1.

Verified-Change Scores

The verified-change scores were similarly analyzed to provide further support for hypothesis 1. These scores were determined by counting the number of times two or more observers reported the same behavior change for a principal. The data indicated that the experimental group had a significantly greater number of verified changes than did the control group. A Wilcoxon T-value of 4.5 (N=9) was significant at the .05 level. The reduced size of N was accounted for in the number of instances where both subjects of a matched pair had the same number of verified changes reported.

Results of the analysis of the total-change scores and the verified-change scores provided strong support for hypothesis 1.

The above analysis does not reflect the direction of the changes. But examination of the specific changes indicated that both positive and negative changes were reported. The

TABLE 2

TOTAL CHANGE SCORES

Matched Pairs	Number of Reported Changes		Difference and Sign	Rank of Difference	Rank with Less Sign
	Experimental	Control			frequent
1	0	1	-1	-2	2
2	3	1	2	5	
3	6	2	4	8	
4	6	4	2	5	
5	6	0	6	9.5	
6	0	1	-1	-2	2
7	7	0	7	11.5	
8	1	2	-1	-2	2
9	2	2	0	--	
10	3	0	3	7	
11	3	3	0	--	
12	4	2	2	5	
13	9	2	7	11.5	
14	6	0	6	9.5	___
Totals	56	20			T = 6*
	N = 12				

*Significant at .05 level.

number of perceived changes reported by the principals in contrast with the number reported by their staffs can be seen in table 3.

One experimental-group principal reported a negative alteration. His written comment was ". . . I think I'm more apt to be less tolerant of other people's feelings and opinions. More 'hard-nosed', in other words." This perceived change was considered negative for scoring purposes. None of the control-group principals reported a negative change; in fact, only one behavioral change was reported by a control-group principal.

As can be seen in table 3, the experimental-group principals reported a total of sixteen positive changes and one negative change. Their staff reported fifteen positive and four negative changes.

On the perceived-change questionnaire, the principals and staffs of the experimental group reported more changes in the way the principal worked with people than did the principals and staffs of the control group. The majority of these alterations were positive in nature.

before-after questionnaire

Nine months elapsed between completion of the before and the after questionnaires. Observers of each principal reported how frequently specific behaviors occurred. Responses were combined to form before and after summary scores for each principal.

TABLE 3

DISTRIBUTION OF POSITIVE AND NEGATIVE CHANGES REPORTED

Matched-Pair	Experimental Group				Control Group			
	By Principal		By Staff		By Principal		By Staff	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
1	0	0	0	0	0	0	1	0
2	0	1	0	2	0	0	1	0
3	2	0	4	0	0	0	2	0
4	1	0	5	0	1	0	3	0
5	4	0	2	0	0	0	0	0
6	0	0	0	0	0	0	1	0
7	3	0	1	3	0	0	0	0
8	0	0	1	0	0	0	1	1
9	2	0	0	0	0	0	1	1
10	1	0	2	0	0	0	0	0
11	0	0	0	3	0	0	3	0
12	0	0	4	0	0	0	2	0
13	2	0	7	0	0	0	0	2
14	1	0	4	1	0	0	0	0
Column Totals	16	1	30	9	1	0	15	4
Totals by Reporter	17		39		1		19	

Differences between the before and after changes were then analyzed by a matched-pairs t-statistic for significance at the .05 level.

Table 4 shows the differences between the changes of the two groups of matched pairs on five variables related to the principal's behavior. Columns 2, 3, and 4, which refer to variables status emphasis, communication, and dominance, show no significant differences between the changes of the two groups. Accordingly, hypotheses 2, 3, and 4 cannot be accepted on the basis of these data.

Consideration--The variable consideration did show a significant difference between the changes of the matched pairs of the experimental and control groups. A t-ratio of 2.1223 (Degrees of Freedom = 13) was high enough to be significant at the .05 level. Support was therefore given to hypothesis 5: the experimental-group principals would show a change toward being more considerate of their staffs.

Leadership--Hypothesis 8 stated that the experimental-group principals would display more changes in leadership directed toward improving the quality of staff performances. Table 4 also shows the analysis of the data pertaining to the changes in Executive Professional Leadership of the principals. The last column of table 4 shows a mean difference of .5324 (t = 3.5470) for EPL. This value, significant at the .05 level, supports hypothesis 8.

Tact--Hypothesis 6 stated that the experimental-group principals would show a positive change in their use of tact. Five items on the questionnaire were used to collect data pertaining to such changes. A total-tact score was derived by

TABLE 4

DIFFERENCES BETWEEN THE CHANGES IN BEHAVIOR--
EXPERIMENTAL-GROUP AND CONTROL-GROUP

	Variables				
	2	3	4	5	8
Mean Difference Between Changes of Matched-Pairs	.0204	.1237	-.1225	.3262	.5324
Estimated Standard Error	.1015	.1862	.0979	.1537	.1501
T-Ratio	.2010	.6643	-1.2513	2.1223**	3.5470**

** = Significant .05 level.
Degrees of Freedom = 13
Variables: 2 = Status emphasis
3 = Communication
4 = Directiveness and dominance
5 = Consideration
8 = Executive Professional Leadership (EPL)
Variables are numbered to correspond with the hypothesis.

TABLE 5

DIFFERENCES BETWEEN THE CHANGES IN TACT--EXPERIMENTAL
AND CONTROL GROUP

	Total Tact	Item #1	Item #2	Item #3	Item #4	Item #5
Mean Differences between Changes	.2993	.4781	.2492	-.2270	.2891	.0768
Estimated Standard Error	.0937	.1958	.1209	.1736	.1452	.1571
T-Ratio	3.194*	2.4417*	2.0612*	-1.3076	1.9924*	-.4888

* = Significant at .05 level.
Degrees of Freedom = 13

TACT Items: "To what extent does your principal engage in the following kinds of behavior?
1. Develops a real interest in your welfare.
2. Puts you at ease when you talk to him.
3. Makes those who work with him feel inferior to him.
4. Develops a 'we feeling' in working with others.
5. Rubs people the wrong way."

finding the arithmetic mean of the five items for each school. As indicated at the bottom of table 5, items 3 and 5 express behaviors which illustrate low tact. These low-tact items were scored negatively before the arithmetic means were developed to give a total-tact score that was consistent with the meaning of the items. The differences between the changes in total-tact of the matched-pairs of principals were significant at the .05 level.

An examination of each of the tact items is also presented in table 5. Tact item 1, "develops a real interest in your welfare," reached the level of significance with a t-ratio of 2.4417. Item 2, "puts you at ease when you talk to him," also had a significant t-ratio (t=2.0612). The other significant item, "develops a 'we feeling' in working with others," had a t-ratio of 1.9924. Three of the five tact items were significant at the .05 level. Tact items 3 and 5 did not show significant differences between changes of the two groups.

Collaborative Decision-Making--Hypothesis 7

stated that the experimental-group principals would change toward a collaborative approach to decision-making. Four items pertaining to this dimension were in the questionnaire. The content of these items is indicated at the bottom of table 6.

An analysis of each of the four items, summarized in the table, shows some positive differences between the changes of the two groups. The t-ratio of .9807 for item 1 was not statistically significant, nor were the t-ratios for items 2 and 4 (1.4825 and 1.1967, respectively). Of the four collaborative decision-making items, only item 3 was statistically significant. The t-ratio of 2.0066 for item 3 was sufficient to be significant at the .05 level. The last column of table 6 indicates that the combined Collaborative Decision-Making differences were not statistically significant at the prescribed .05 level. Apparently, the experimental-group principals changed toward sharing with their staffs the responsibility for determining how the teachers should be supervised.

TABLE 6

DIFFERENCES BETWEEN CHANGES IN COLLABORATIVE DECISION-MAKING--
EXPERIMENTAL AND CONTROL GROUP

	Item #1	Item #2	Item #3	Item #4	Combined Total
Mean Difference between Changes	.1930	.3592	.4286	.2853	.2101
Estimated Standard Error	.1968	.2423	.2136	.2384	.1931
T-Ratio	.9807	1.4825	2.0066*	1.1967	1.0880

* = Significant at .05 level.
Degrees of Freedom = 13

Collaborative Decision-Making Items: "To what extent does your principal share with teachers the following responsibilities:

1. For determining the minimum level of satisfactory student performance.
2. For evaluating how good a job the school is doing.
3. For determining how teachers should be supervised.
4. For developing a policy for handling student discipline."

TABLE 7

SOCIAL-EMOTIONAL CLIMATE CHANGES--
EXPERIMENTAL AND CONTROL GROUP STAFFS

	Variables		
	Staff Cohesiveness 10	Staff Morale 11	Hindrance 12
Mean Difference	-.0354	.2046	-.0254
Estimated Standard Error	.0599	.0966	.0857
T-Ratio	-.5810	2.1180*	-.3132

* = Significant at .05 level.
Degrees of Freedom = 13

social-emotional climate changes

Changes in the principals' behavior as a result of laboratory training were expected to effect alterations in the social-emotional climate among the school faculties. Specific changes were hypothesized in the levels of staff cohesiveness, morale, hindrance, and in the organizational climate. Each of these hypotheses was tested for significant differences between the changes of staffs in the matched schools.

Table 7 shows the differences between the changes of experimental and control group staffs on the variables cohesiveness, morale, and hindrance. As can be seen in table 7, only the variable of staff morale reached a significant level. A t-ratio of 2.1180 was large enough to be statistically significant at the .05 level. Support was provided by these data for accepting hypothesis 10.

The variables of staff cohesiveness and hindrance did not reach statistical significance. Hypotheses pertaining to these variables could not be accepted.

school organizational climate

Hypothesis 12 stated that the school organizational climates of the experimental group would become more open. An open organizational climate reflects a school which is moving toward its goals while providing satisfaction for the staff members' individual needs. Indicators of the open climate are scores high on the subtest Esprit and Thrust and low on the subtest Disengagement of the OCDQ. These subtests correspond to the variables morale, communication, and group cohesiveness, which were used in this study. An openness score was determined for each school, both before and after, by adding the scores for morale and communication, and subtracting from that sum the score for group cohesiveness. The organizational-climate scores and tests for significance, found in table 8, show that the climates of the control schools altered toward less openness, while those of the experimental schools changed toward more openness. At the bottom of table 8 are shown the differences between the changes tested for significance on a matched-pair design. The mean difference of .3236 was sufficient to reach a significant level (t = 1.8544). Support for hypothesis 12 was

TABLE 8

ORGANIZATIONAL CLIMATE DISTRIBUTION AND TEST OF DIFFERENCES

Matched-Pair	Control Schools			Experimental Schools		
	Pre	Post	Difference	Pre	Post	Difference
1	4.272	3.726	-.546	3.443	3.999	.556
2	3.500	3.250	-.250	3.665	2.334	-1.331
3	4.600	3.800	-.800	4.667	4.833	.166
4	2.666	3.000	.334	3.818	4.000	.182
5	4.600	4.800	.200	3.200	3.600	.400
6	2.600	2.400	-.200	3.250	4.250	1.000
7	3.625	3.500	-.125	3.000	3.800	.800
8	4.399	4.700	.301	5.111	5.333	.222
9	4.286	4.428	.142	3.858	3.714	-.144
10	3.500	3.250	-.250	3.666	3.499	-.167
11	3.856	3.570	-.286	4.000	3.625	-.375
12	3.750	3.750	.000	3.500	4.166	.666
13	4.250	4.500	.250	1.999	3.110	1.111
14	3.375	2.875	-.500	2.999	2.713	-.286
			-1.730			2.800

Difference between the changes in climate

Mean Diff.	.3236
Est. S. E.	.1745
T-Ratio	1.8544*

* = Significant at .05 level.
Degrees of Freedom = 13

provided by these data.

an unexpected finding

During the process of analyzing these data an unexpected finding revealed that the control group moved toward lower scores on several variables in before-to-after measures. To examine these changes, the mean scores of the control and experimental groups were arranged in tabular form. Table 9 provides the result of this procedure:

1. The control group scored consistently "better" than the experimental group on nineteen of twenty items on the before-measures. ("Better" refers to a more desirable score for a variable. For six of the twenty variables, those marked with (n) on table 9, a lower score was considered more desirable.)
2. The control group led in ten of the twenty variables on the after-measure. The experimental group was "better" in ten of the twenty variables.
3. Examination of the differences, as shown in columns five and eight in table 9, indicates that the experimental group changed in a desirable direction--i.e., toward "better"

TABLE 9

MEAN SCORES AND DIFFERENCES OF BOTH GROUPS ON ALL VARIABLES TESTED

Hypothesis Number			Experimental			Control		
			Before	After	Differences	Before	After	Differences
1	(n)	Status	1.768	1.757	-.011	1.375	1.584	.209
2		Communication	2.529	2.567	.048	2.607	2.529	-.078
3	(n)	Dominance	1.812	1.659	-.153	1.668	1.660	-.008
4		Consideration	1.972	2.048	.076**	2.140	1.873	-.267
5		Tact:						
		Total	4.768	4.884	.116**	5.195	4.975	-.220
		Item #1	4.303	4.504	.201**	4.765	4.450	-.315
		Item #2	4.932	4.998	.066**	5.384	5.129	-.255
	(n)	Item #3	1.717	1.544	-.173	1.320	1.365	.045
		Item #4	4.468	4.618	.150**	4.873	4.735	-.138
	(n)	Item #5	2.268	2.158	-.110	1.876	2.076	.200
6		Decision-Making:						
		Total	3.471	3.637	.166	3.991	3.875	-.116
		Item #1	3.545	3.613	.078	4.109	3.995	-.104
		Item #2	3.792	3.936	.144	4.314	4.163	-.252
		Item #3	2.907	3.179	.272**	3.332	3.244	-.088
		Item #4	3.884	4.129	.245	4.277	4.094	-.183
7		EPL	1.584	1.871	.287**	1.837	1.592	-.245
8	(n)	Cohesion	1.181	1.123	-.058	1.080	1.050	-.030
9		Morale	2.439	2.582	.143**	2.599	2.537	-.062
10	(n)	Hindrance	1.385	1.365	-.020	1.401	1.408	.007
11		Climate	3.584	3.784	.200**	3.806	3.682	-.124

(n) Lower scores on these variables considered "better."
** Difference between changes of matched pairs was significant at .05

scores--on every variable, while the control group changed toward less desirable scores on all but two variables, dominance and cohesion.

SUMMARY OF FINDINGS

A perceived-change questionnaire was completed five months after the laboratory. Selected staff members and the principals reported changes that were evident in the way the principals worked with people. Total and verified-change scores were analyzed for significance by the Wilcoxon Matched-Pairs Signed-Ranks Test. Results indicated that the experimental group had a significantly higher number of reported changes than did the control group. The experimental group also had a higher number of verified changes where two or more observers reported the same behavior for a principal. The majority of these were positive in nature.

The final after-measure was conducted eight months after the laboratory. The time delay was considered necessary to allow any behavioral changes to become observable. Also, the time span allowed for the waning of immediate post-training enthusiasm--the after-measure tapped only the durable changes. Differences between the changes of the control and experimental groups were analyzed by a matched-pairs t-test.

The results of the analysis procedure provided support for the following

hypotheses:

4--The experimental-group principals showed more positive change toward being considerate to the individual needs of the staff.

5--The experimental-group principals showed more change toward the use of tact.

6--The experimental-group principals showed more change toward a collaborative approach to decision-making in the area of deciding how the teachers should be supervised.

7--The experimental-group principals displayed increased leadership directed toward improving the quality of staff performances (EPL).

9--The staff of the experimental-group principals shows more change toward higher group morale.

11--The experimental-group principals' schools changed toward more open organizational climates.

An unexpected finding was that the control group changed toward less desirable scores on eighteen variables from before-to-after measures, while the experimental group changed toward more desirable scores on all twenty variables.

INTERPRETATIONS

Due to the nature and design of this study, it was not possible for the investigator to select a random sample or to assign subjects randomly to the treatment groups. Generalizations made beyond the limits of the specific sample involved must be made with caution. However, certain conclusions regarding the effects of the specific laboratory on the sample of elementary principals involved are suggested.

The elementary principals who participated did alter certain aspects of their behavior in working with their staffs. As a group, they became more considerate of their staffs than did the matched control group. They also demonstrated more change in the use of tact in dealing with others. This indicates that the group who attended the laboratory training were more aware of the conditions which facilitate effective group functioning and altered their interpersonal behavior with the school staff.

The principals were more willing to share decision-making regarding how the teachers should be supervised. This indicates that they felt less threatened by their teachers and thus more willing to engage in democratic decision-making processes.

Being more tactful, considerate, and democratic with the staff can help a principal overcome the interpersonal barriers associated with helping a teacher improve his performance. Evidence indicates that a principal's EPL is closely associated with both teacher and pupil performances and the experimental group demonstrated more change toward higher EPL than did the control group.[14]

Does an elementary school principal change his behavior as a result of a five-day training laboratory? The findings indicate that not only did the principals' interpersonal behaviors change, but the changes were desirable both administratively and educationally.

In answer to the question of school climate, the impact of the behavioral changes of the principals was evident. The experimental-group staffs displayed more change toward higher group morale and toward more open organizational climates in their schools. The staffs were deriving more satisfaction from their work and were also more open to accept educational innovation.

The findings support the use of laboratory training as one means of effecting change in the interpersonal relations of elementary school principals with their teaching staff. The changes may have important, positive consequences for the quality of the educational program provided in an elementary school.

An unexpected finding revealed that the control group showed a decline in eighteen of the twenty variables measured during the period of evaluation--from May, 1968, to March, 1969; i.e., they tended to change toward less desirable scores on nearly all the variables measured. This finding was unexpected because it had been assumed that additional experience, travel, and summer school (if attended) would have had positive rather than negative influence on the control group.

RECOMMENDATIONS

laboratory training

Laboratory training in interpersonal relations is an effective means of improving principal-staff relationships in an elementary school. In the belief that these principal-staff relationships are a key to providing a sound education for elementary school children, the following recommendations are submitted:

1. Principals' associations, state departments of education, and local districts should be encouraged to continue sponsoring training laboratories for school administrators.
2. Universities and colleges should consider the wider use of laboratory training methods in educational programs for elementary school principals.
3. Carefully controlled research should follow up each laboratory to determine which activities and what laboratory length provide optimal learning.
4. Consideration should be given to conducting an educators' laboratory in August rather than in June. It is possible that a laboratory held just prior to the opening of school would be even more effective in changing behavior than one held just after the school year ends.

future research

In the course of this study several questions were raised which could serve as a basis for further research:

1. What effect do increased leadership and subsequent increased staff morale have on pupil learning, pupil self-concepts, or pupil attitudes toward school?
2. Do teachers teach differently as a result of a principal's increased efforts to improve the quality of staff performance?
3. What other variables besides laboratory training can produce changes in the behavior of elementary school principals and in the social-emotional climate of their schools?

The present study had several inherent weaknesses which should be strengthened in any future research:

1. The subjects could not be randomly selected or assigned for this study. Overcoming this weakness would increase the value of the findings.
2. More controls should be applied to the measuring aspect of the study. The before-measures and after-measures should be carefully timed. A before-measure completed in May should be followed with an after-measure in May of the following year. Additional measures taken during the year could be helpful. Also, measures should be administered to a faculty in one controlled sitting.

The present study indicates that laboratory training in interpersonal relations experienced by an elementary school principal both effects his behavior with his staff and the social-emotional climate of the school. However, more research is needed to confirm that elementary school principals who are involved in such laboratory training undergo behavioral changes, and that these changes can improve the learning climate of a school.

FOOTNOTES

1. Daniel E. Griffiths. "New Forces in School Administration," p. 51.
2. William H. Graves, Jr. and Nathan Stroller. Reports of Selected Elementary School Principals on their Professional Problems.
3. Appendix A & B - Contains the Schedule of Activities included in the training laboratory and the names of the training staff.
4. Especially useful references are: Bennis, Changing Organizations; Bradford, Gibb and Benne, T-Group Theory and Laboratory Method; Marrow, Behind the Executive Mask: Greater Managerial Competence through Deeper Self-Understanding; Schein and Bennis, Personal and Organizational Change through Group Methods: The Laboratory Approach;Weschler and Reisel, Inside a Sensitivity Training Group.
5. Andrew W. Halpin and Don B. Croft. The Organizational Climate of Schools, pp. 40-41.
6. Ibid., p. 50.
7. Ibid., p. 66.
8. Neal Gross and Robert E. Herriott. Staff Leadership in Public Schools: A Sociological Inquiry, p. 24.
9. Carl I. Hovland, Arthur A. Lumsdaine, and Fred D. Sheffield. Experiments on Mass Communication, Vol. III of Studies in Social Psychology in World War II, p. 320.
10. Ibid., p. 324.
11. William L. Hays, Statistics. p. 322.
12. Terrance A. Thomas. "The Effects of Laboratory Training on the Interpersonal Relations of Elementary School Principals with their Teaching Staff."
13. Sidney Siegel. Nonparametric Statistics for the Behavioral Sciences, p. 254.
14. Gross and Herriott. Staff Leadership, p. 22.

APPENDIX A

FIVE-DAY LABORATORY IN INTERPERSONAL RELATIONS
Forest Grove, Oregon
June 17-21, 1968
Daily Schedule

The overall design of the laboratory as developed by the staff was as follows:

SCHEDULE:

Monday	**9:00 a.m.**	**Introduction to the laboratory and assignments to T-groups. (John Wallen)**
	9:30-10:30	**Five-square puzzle. (Richard Schmuck)**
	11:00-12:00	**Force field analysis and identification of personal learning goals for the week. (Robert Crosby)**
	1:30- 4:00 p.m.	**T-Groups.**
	7:00- 9:30	**T-Groups cluster in fish-bowl design, cross-group pairs talk for 5 minutes. Innergroup interactions for 15 minutes observed by outer. Cross-group pairs again talk now giving feedback on what the observer has seen. Then the groups reverse and the outergroup becomes the innergroup.**
Tuesday	**8:00- 9:30 a.m.**	**T-Groups.**
	9:30-10:15	**Introduction of paraphrasing and paraphrase practice. (Donald Murray)**
	10:45-12:00	**T-Groups.**
	3:00- 4:00 p.m.	**Individuals read "Emotions as Problems"--select most personally relevant or personally significant paragraphs for them and then discuss these and the bases for their choice in trios. Last half hour, introduction of nonverbal exercises:** **a) Body awareness** **b) Total mirroring** **c) In T-groups large circle moving into the center and becoming closer and closer and closer, then returning to the large circle, meanwhile maintaining a back and forth rocking movement. (William Barber)**
	4:00- 5:30	**T-Group.**
	7:00	**Individuals read "The Interpersonal Gap," 30 minute question period of John Wallen.**
	7:45- 9:30	**T-Group.**

Wednesday	8:00- 9:30 a.m.	T-Group.
	9:30-10:45	Exercises in the communication of feelings. (John Thomas)
	10:45-12:00	T-Groups.
	1:30 p.m.	Eight-step exercise in preparing and giving feedback. (Robert Crosby)
	2:45- 4:00	T-Group.
	4:00 p.m. Wednesday	8:00 a.m. Thursday - Free time.
Thursday	8:00- 9:30 a.m.	T-Group.
	9:30-10:30	Lecture--"The Threat-Challenge Model." (Ernest Fiedler)
	10:45-12:00	T-Group.
	3:00- 3:30 p.m.	Lecture--"Interpersonal Relationships: The Vertical and Horizontal Dimensions." Constructive openness and talking about your relationships with another person. (John Wallen)
	3:30- 4:15	Practice in constructive openness in pairs.
	4:15- 5:30	T-Group.
	7:00- 9:30	T-Group.
Friday	8:00-12:00 a.m.	T-Group.
	1:30- 3:00 p.m.	T-Group.
	3:30- 4:00	Dismissed.

APPENDIX B

TRAINING STAFF FOR THE LABORATORY IN INTERPERSONAL RELATIONS

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